

Serial No. 09/927,916

## Response to Office Action

Examiner: Minerva Rivero  
Group Art Unit: 2655REMARKS

## STATUS OF CLAIMS

All of pending claims 1-20 were originally filed. No amendments to the claims have been made.

## ARGUMENTS IN GENERAL

For the sake of efficiency, applicants will first address the Tsourikov reference (U.S. Pat. No. 6,167,370) generally, applied by the arguments of rejection contained in the 3/7/2005 office action.

Tsourikov discloses a system for processing a natural language request entered by a user and performing a search through the use of subject-action-object (SAO) structures. Importantly, the system of Tsourikov relies on a "standard search engine", such as those provided by AltaVista or Yahoo, to perform the actual search functions (col. 6 lines 23-29 and col. 3 lines 9-11.) Following performance of a search, the SAO analysis proceeds for the documents found. Those documents not having a matching SAO are discarded, and the remainder are ranked according to relevancy (col. 6 lines 29-40.)

The Tsourikov system operates to expand the number of search queries, or SAOs searched for. The reason for this is apparent. The standard search engines have no interface or facility for performing an SAO search, or other search differing from a standard word-based search. The Tsourikov system therefore uses as many "key word" search query permutations as it can reasonably generate in an effort to capture all documents that might yield an SAO match. The reader may look to the following particular references in support of that premise:

1. A sentence may contain several SAO extractions, which are subsequently searched upon.

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This is apparent from a reading of col. 5 lines 11-15 (creating an extracted table of several SAO extractions shown in figure 12 and SAO structures in figure 13) and col. 6 lines 23-25 (SAO structure key words/phrases are ... sent to a standard search engine.)

2. Additional search queries are created using dictionary synonyms (col. 4 lines 59-62 and col. 2 line 60.)

Tsourikov makes no suggestion that SAOs or search queries should be condensed into a smaller set of SAOs or queries, and indeed it would be undesirable to do so in that system because it would reduce the number of documents returned by the standard search engines, causing that system to miss potential document matches.

The inventions of claims 1-15 perform a "unification for each sentence that generates more than one thematic role extraction to generate a single unified representation of each sentence." The unification operation is described in the specification in paragraphs 46, 62-64 and 81-82. In the example described in paragraphs 63 and 64, the two "time" theta role extractions are unified into one extraction, by which the time of that event is refined. A unification of thematic role extractions is therefore a condensing rather than an expanding operation as in Tsourikov.

The arguments of rejection point in Tsourikov to col. 2 lines 60-66, figure 4 element 42 "SAO normalizer", figure 11 "parsed sentence", col. 5 lines 45-56 "combining groups into a natural language sentence" and figure 6 elements 68 and 70 "combiner." Applicants will now address those specific references.

First as to col. 2 lines 60-66, the only text of any use to the arguments of rejection is "each extraction is normalized into a SAO structure by processing extractions according to certain rules described below." Element 42 of figure 4 is likewise relied on for disclosure of an "SAO normalizer." The arguments of rejection therefore rely on showing that "normalization" falls

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within the scope of "unification" as claimed.

The arguments of rejection fail to consider col. 6 lines 4-7, which tells what "normalization" is: "Then the method normalizes these words (modifies) each as each action is changed to its infinitive form. Thus, 'is isolated' FIG. 12 is changed to 'ISOLATE', the word 'to' being understood (FIG. 13)." Looking at figure 13 from figure 12, the infinitive forms are used and unimportant words such as "the" and "a" are removed. The reason this is done is readily apparent, which is to improve the number of documents returned by the standard search engines.

Merely changing verbs to infinitive form and removing unimportant words does not constitute a unification, nor a "unification [of] more than one thematic role extraction to generate a single unified representation." An even if the assumption of the arguments of rejection that an SAO structure contains a thematic role, the same number of SAOs and SAO elements remain in Tsourikov's example of figures 12 and 13.

Col. 5 lines 45-56 and figure 6 disclose the synthesis (i.e. generation) of a natural language sentence from a group of SAO structures. Presumably, the arguments of rejection argue that the produced sentences are "unifications" of SAO structures. That premise would be in error, because natural language sentences would be generated from sentences that generated only a single SAO. The synthesis operation of Tsourikov is therefore not a unification operation, but rather a transformative one.

Figure 11 is of no support to the arguments of rejection, as that is a representation of a parsed sentence before a "normalization" step.

The remaining arguments not relating to the claims as generally will be argued below.

**POINT-SPECIFIC ARGUMENT**

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Applicant now addresses each item of the latest office action, referring to those items as enumerated by the Office.

1. A statement on the nonstatutory double patenting type of rejection is given, which also states the possibility of overcoming such a rejection through a terminal disclaimer.

2. Claims 1-20 are provisionally rejected under obviousness-type double patenting over Appl. No. 09/927,782, with the allegation that "it is obvious to derive a method from the system implementing it."

Applicants assert that the Office has not made a prima facie case of obviousness sufficient to support an obviousness-type double patenting rejection. More particularly, the Office fails to point to a motivation to combine the steps recited by the claims, which motivation being provided in a reference as required by MPEP § 2142, page 2100-124. Even so, applicants are willing to consider supplying a terminal disclaimer if the patent terms resulting from this application and Appl. No. 09/927,782 do not have a dissimilar length.

3. Claims 7, 9, 10 and 17-20 are objected to as being dependent on a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicants do not agree with the rejections of the base claims on which these claims depend, and have therefore made no corresponding amendment. Should the Office prevail in their arguments, applicants will consider amending these claims in independent form as suggested.

4. The Office takes the position that Tsourikov does not disclose thematic role assignment performed by translating caseframe-extracted elements to specific thematic roles, as in claim 7.

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Applicants do not disagree with this statement.

5. The Office takes the position that Tsourikov does not disclose thematic assignment using conceptual thematic roles defined according to a particular caseframe useful in a specific subject area, as in claim 9.

Applicants do not disagree with this statement.

6. The Office takes the position that Tsourikov does not disclose building a relational text index storing specifier thematic role information, as in claim 10.

Applicants do not disagree with this statement.

7. The Office takes the position that Tsourikov does not disclose thematic role assignment being performed by translating raw caseframe-extractions to specific thematic roles. The Office further alleges that the remaining elements of claim 16 are disclosed by Tsourikov.

Applicant agrees that Tsourikov does not disclose thematic role assignment being performed by translating raw caseframe-extractions to specific thematic roles. Applicant does not agree that all the claim elements are disclosed.

8. 35 U.S.C. § 112 is recited in support of the rejection numbered 9.

9. Claim 13 is rejected under 35 U.S.C. § 112 for insufficient antecedent basis for a "specifier role".

Specifier roles are disclosed in the specification at paragraph 86 in step 6. As disclosed in

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paragraph 60, a specifier role is a theta role that includes a modification that restricts the interpretation of an action or participant. Applicants in claim 13 do not claim specifier roles per se, but rather the additional step of performing the recited actions of that claim for each specifier role used in building a relational text index. Although additional language could be added to claim 13 to recite the definition made in the specification, applicants believe that the claim as presently worded is not ambiguous and is allowable.

10. 35 U.S.C. § 102(e) is recited in support of the rejections numbered 11-20.

11. Claims 1-2, 4-6, 8, 11-2, 14 and 15 are rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,167,370 (Tsourikov.)

Applicants will address each of the particular claim rejections below.

12. Claims 1 and 4 are rejected under 35 U.S.C. § 102(e) with allegations as cited for those claims.

Applicants traverse this rejection on grounds that at least the step of performing unification for each sentence that generates more than one role is not disclosed by Tsourikov, as argued above. Applicants maintain the position that Tsourikov discloses the expansion of the number of SAO structures, rather than the condensing of thematic roles.

13. Claim 2 is rejected under 35 U.S.C. § 102(e) with allegations as cited for that claim.

Applicants traverse this rejection on grounds as stated for claim 1.

14. Claim 5 is rejected under 35 U.S.C. § 102(e) with allegations as cited for that claim.

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Applicants traverse this rejection on grounds as stated for claim 1.

15. Claim 6 is rejected under 35 U.S.C. § 102(e) with allegations as cited for that claim.

Applicants traverse this rejection on grounds as stated for claim 1, and further that Tsourikov does not disclose the use of a trigger term in combination with a syntactic term. The Office's application of its definitions is erroneous. These terms are defined in paragraph 55: a trigger term is most often a conjugation of a particular verb in a particular voice (nouns can be trigger terms), while the syntactic term defines the order of the components of the sentence.

16. Claim 8 is rejected under 35 U.S.C. § 102(e) with allegations as cited for that claim.

Applicants traverse this rejection on grounds as stated for claim 1, and further that Tsourikov does not disclose the assignment of thematic roles of experiencers and identifiers.

17. Claim 11 is rejected under 35 U.S.C. § 102(e) with allegations as cited for that claim.

Applicants traverse this rejection on grounds as stated for claim 1, and further that Tsourikov does not disclose the appending of data created by a unification step.

18. Claim 12 is rejected under 35 U.S.C. § 102(e) with allegations as cited for that claim.

Applicants traverse this rejection on grounds as stated for claim 1, and further that Tsourikov does not disclose the inclusion into a database of the raw form and the morphological root form for each actor, action or object in combination with information for locating a corresponding sentence in a document.

19. Claim 14 is rejected under 35 U.S.C. § 102(e) with allegations as cited for that claim.

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Applicants traverse this rejection on grounds as stated for claim 1, and further that Tsourikov does not disclose the creation of key values for each record stored in a relational text index. The creation and use of key values is disclosed in paragraphs 68 and 92. Tsourikov at col. 5 lines 23-25 discloses the storage of documents, but not through the use of key values.

20. Claim 15 is rejected under 35 U.S.C. § 102(e) with allegations as cited for that claim.

Applicants traverse this rejection on grounds as stated for claim 1, and further that Tsourikov does not disclose creating a record for each node in a semantic hierarchy, creating a record for each term containing its name and name of its semantic class, nor assigning semantic class information to extracted elements. Tsourikov at col. 5 lines 3-11 discloses the creation of a hierarchical coded form, but not the creation of both of such records.

21. 35 U.S.C. § 103(a) is recited in support of the rejection numbered 22.

22. Claim 3 is rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,167,370 (Tsourikov) in view of U.S. Patent No. 5,960,384 (Brash.)

Applicants traverse this rejection on grounds recited for claim 1, and further that a prima facie case of obviousness has not been sufficiently made. More particularly, the forwarded motivation of the Office is insufficient. The reference at col. 1 lines 16-19 discloses the need for a parsing device if natural language is to be used in an appliance, such as an air conditioner or a kitchen appliance. The system disclosed by Tsourikov is for performing document searches, which is incompatible with the operation of an appliance.

23. U.S. Patent No. 4,661,924 (Okamoto) is considered pertinent to the present disclosure.



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Applicants take notice of the art made of record and not relied upon.

24. The telephone numbers of the examiner and the examiner's supervisor are offered.

Applicants thank the examiner for efforts spent in consideration of the present application.

The applicant's representative would be grateful to be contacted should there be any remaining questions.

Respectfully submitted this 7 day of September, 2005.



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